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FM-112J

EXAMINER

ART UNIT

PAPER NUMBER

1195

DATE MAILED: 01/17/56

This is a communication from the examiner in charge of your application.  
COMMISSIONER OF PATENTS AND TRADEMARKS

☒ This application has been examined ☒ Responsive to communication filed on 10-2-95 ☒ This action is made final.

A shortened statutory period for response to this action is set to expire 3 month(s), — days from the date of this letter.  
Failure to respond within the period for response will cause the application to become abandoned. 35 U.S.C. 133

**Part I THE FOLLOWING ATTACHMENT(S) ARE PART OF THIS ACTION:**

- |   |   |
|---|---|
| 1. <input type="checkbox"/> Notice of References Cited by Examiner, PTO-892.        | 2. <input type="checkbox"/> Notice of Draftsman's Patent Drawing Review, PTO-948. |
| 3. <input type="checkbox"/> Notice of Art Cited by Applicant, PTO-1449.             | 4. <input type="checkbox"/> Notice of Informal Patent Application, PTO-152.       |
| 5. <input type="checkbox"/> Information on How to Effect Drawing Changes, PTO-1474. | 6. <input type="checkbox"/>   |

**Part II SUMMARY OF ACTION**

1. ☒ Claims 1-24 are pending in the application.  
Of the above, claims 5, 8, 21 and 23 are withdrawn from consideration.
2. ☐ Claims \_\_\_\_\_ have been cancelled.
3. ☐ Claims \_\_\_\_\_ are allowed.
4. ☒ Claims 1-4, 6, 7, 9-20 and 22 are rejected.
5. ☐ Claims \_\_\_\_\_ are objected to.
6. ☐ Claims \_\_\_\_\_ are subject to restriction or election requirement.
7. ☐ This application has been filed with informal drawings under 37 C.F.R. 1.85 which are acceptable for examination purposes.
8. ☐ Formal drawings are required in response to this Office action.
9. ☐ The corrected or substitute drawings have been received on \_\_\_\_\_. Under 37 C.F.R. 1.84 these drawings are ☐ acceptable; ☐ not acceptable (see explanation or Notice of Draftsman's Patent Drawing Review, PTO-948).
10. ☐ The proposed additional or substitute sheet(s) of drawings, filed on \_\_\_\_\_, has (have) been ☐ approved by the examiner; ☐ disapproved by the examiner (see explanation).
11. ☐ The proposed drawing correction, filed \_\_\_\_\_, has been ☐ approved; ☐ disapproved (see explanation).
12. ☐ Acknowledgement is made of the claim for priority under 35 U.S.C. 119. The certified copy has ☐ been received ☐ not been received ☐ been filed in parent application, serial no. \_\_\_\_\_; filed on \_\_\_\_\_.
13. ☐ Since this application appears to be in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11; 453 O.G. 213.
14. ☐ Other

EXAMINER'S ACTION

Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and the finality of that action is withdrawn.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 3, 6, 9, 10, 12, 16, 18, 20, 22 and 24 are rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 4,923,540 to Born et al.

Born et al discloses a method of adhering two fiber-reinforced composites together which includes the steps of bringing together the joint surfaces of the composites with fibers projecting from the surfaces, disposing adhesive therebetween and urging the respective surfaces together. (Note column 1, lines 50-61 and column 2, lines 39-45). The language "disposing...elements through the thickness" does not exclude the reinforcing fibers or elements of the art since the fibers therein were disposed throughout the articles. As shown in applicant Fig. 2, the reinforcements 16 are actually in a perpendicular (i.e. vertical) direction while the fibers of the composites are in a horizontal direction.

Claims 1, 3, 9, 10, 12, 16, 18, 20, 22 and 24 are rejected under 35 U.S.C. § 102(b) as being anticipated by the 783035 Publication.

The 783035 Publication discloses a method wherein reinforced composite parts 1 and 2 are assembled face-to-face to provide a joint region therebetween with reinforcing elements 3 interstitially disposed in the joint region and a rubber adherent disposed about the elements and joint surfaces. (Note the Abstract). The language "disposing...elements through the thickness" does not exclude the reinforcing fibers or elements of the art since the fibers therein were disposed throughout the articles. As shown in applicant Fig. 2, the reinforcements 16 are actually in a perpendicular (i.e. vertical) direction while the fibers of the composites are in a horizontal direction.

The following is a quotation of 35 U.S.C. § 103 which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Subject matter developed by another person, which qualifies as prior art only under subsection (f) or (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same

person or subject to an obligation of assignment to the same person.

Claims 2, 7, 11 and 17 are rejected under 35 U.S.C. § 103 as being unpatentable over Born et al.

The disclosure particularly in column 1, at line 13 clearly suggests the use of prepregs and it would have been obvious to employ prepregs as the fiber-reinforced plastic composites in the bonding method of Born et al with the expectation that the prepregs would be successfully joined. Additionally, the use of carbon-carbon composites would have been obvious bearing in mind the generic nature of suitable composites disclosed in the reference.

Claim 3 is rejected under 35 U.S.C. § 103 as being unpatentable over 783035 Publication.

The 783035 Publication is relied upon for the reasons cited above. The reinforcing elements 3 are not specifically disclosed as fibers although the word "strands" is disclosed. In any event, high modulus fibers are conventionally employed in conveyor belts and it would have been obvious to employ the belts in the process of the reference.

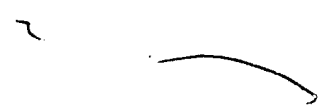
Claims 1-4, 6, 7, 9-20, 22 and 24 are rejected under 35 U.S.C. § 103 as being unpatentable over U.S. Patent No. 5,021,107 to Holko in view of Born et al, U.S. Patent No. 5,330,064 to Allum et al and the 783035 Publication.

Holko discloses a brazing process for joining carbon-carbon composite components. An interlayer adherent is disclosed between

the surfaces of the composites (adherends) to be joined and the assembly is held together under compression while it is heated to a temperature to melt the interlayer material and cause bonding between the interlayer and the carbon-carbon composite material. (Note column 2, lines 11-60). The carbon-carbon composite adherends are formed by a process that involves disposing a plurality of fibrous reinforcing elements throughout the thickness thereof. Thus, Holko discloses all the recited steps of the claimed methods, but does not specifically disclose that reinforcing fibers in the composites extend from the surfaces thereof. The secondary art collectively teaches the concept of strengthening a joint between 2 fibrous adherends by extending the fibers beyond the joint surfaces of the adherends and into the joint area therebetween. (Note column 1, line 66 to column 2, line 3 and column 3, lines 16-18 of Allum et al). It would have been obvious to modify the brazing method of Holko by extending the fibers of the composite adherends into the joint area as disclosed in the secondary art motivated by a reasonable expectation that the joint between the adherends would be strengthened.

Claim 24 is rejected under 35 U.S.C. § 103 as being unpatentable over U.S. Patent No. 4,808,461 to Boyce et al.

Figure 8 of the reference suggests the method steps of inserting reinforcing elements 14' thru thickness of adherends 56, 58 and bonding by heating to flow resin of composite.



Serial Number: 08/056029  
Art Unit: 1502

-6-

Therefore, it would have been obvious to modify the method by extending the fibers of the composite thru thickness of adherends.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kathryn E. Shelborne whose telephone number is (703) 308-3627.

KeS *Kathy S.*  
March 29, 1996

*Thurman K. Page*  
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SUPERVISORY PATENT EXAMINER  
ART UNIT 152